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the follow- through

The history of the serious operation, possibly for cancer, upon President Cleveland, has appeared several times previously. It is again recounted in this issue, not because the story makes the modern detective thriller look like "Little Women" by comparison, which it does; nor because we have been able to throw any new light on its details, although we sense a growing suspicion that the President did not have cancer, after all; but chiefly because the President's treatment, involving the loss of an upper jaw with its resulting deformity and unintelligible speech, required a prompt and skillful job of rehabilitation. He got it.

It raises a question that is becoming more pressing as more radical surgery (mostly for cancer) is performed; namely, does everybody get it? Does every patient with a colostomy have a chance to learn how to keep himself clean and neutral-smelling, without encumbering gadgets? Does every woman who has lost a breast get an understanding talk or two or more from her doctor, di-

rected toward reader acceptance of her deformity? and does she get pinpointed, fact-full advice as to where she can obtain a false that will suit even her?

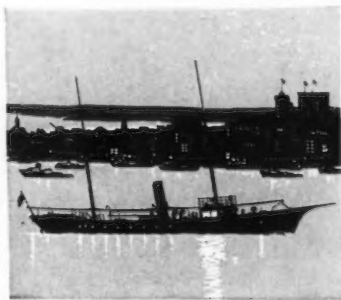
Is every "laryngectomee" exposed to expert instruction on how to talk in spite of his lost chords?

Too often the answer to these and similar questions is "No."

If the surgeon responsible for the deformity or dysfunction cannot or will not take the time to complete his treatment, that is, to supervise the patient's restoration to normal, as nearly as that is possible—then the patient's family doctor must assume that responsibility.

The total treatment of cancer embraces detection, curative or palliative treatment and—depending on our success—rehabilitation. If we are to treat the patient and not only the disease, then rehabilitation—the follow-through—whether it takes the form of plastic surgery, prostheses, psychology, or whatever, must be recognized and practiced as an integral part of getting sick people well.

*The yacht Oneida in the East River with lower New York City, in the year 1893, in the background. The story of the role of the Oneida in the operation on President Grover Cleveland is recounted on page 160.
(Cover: drake • kittilson, New York City.)*



NEWSLETTER

JULY 1951

Why Doctors Are Dodged: King and Leach (Memorial Center) have interviewed 329 clinic patients to determine why so many shun medical care. They also tried to correlate "doctor loving" and "doctor dodging" with many factors. Two thirds of the patients don't see their doctor, they found, until they are in acute distress or under social pressures.

In this study, a patient was guilty of delay and poor medical habits if, after symptoms appeared, he waited three months or longer before consulting a physician or if he refused advice or referral to a suitable physician, hospital, or clinic.

Two factors stood out: age and education. More than two thirds of the patients more than 60 years of age were doctor dodgers, in contrast to less than one half of those less than 60. Of those who had not gone beyond grammar school, 60 per cent had poor medical-care habits, compared with 42.7 per cent of those who had some high-school training.

Sex made little difference - 58.5 per cent of men and 49 per cent of women were doctor dodgers. Economic status was no significant statistical factor, although some reluctant patients cited costs as a consideration. Some described medical care as a luxury to be satisfied only after such necessities as food, clothes, and shelter were taken care of.

First-generation Americans were more medical-care conscious than second-generation Americans.

Cancer in Rubber Processing: Steiner and others (U. Chicago) have found hydrocarbons used in tire and other rubber manufacture to be potent carcinogens to mice. Indicted chemicals are a form of carbon black, which is related to gas black formed by the incomplete combustion of natural gas, furnace black, and lampblack.

The investigators draw no conclusions as to the potential public menace of the product, which exists in tires.

inner tubes, rubber stoppers, conveyor belts, shoe soles and heels, rubber hose, flooring, and other products. Newspaper and paint industries are important users of carbon black.

They point out that while the carcinogens are present in minute amounts, are relatively insoluble, and are imbedded in rubber beyond ready contact with handlers, they are easily extracted with some organic solvents commonly used in laboratories.

Enlarged Liver and Cancer: Morton, Mider, and others (U. Rochester) have found in rat observations that livers enlarge as tumors grow. Both protein and water content account for the enlargement. Also, oxygen consumption in liver slices is higher in samples from cancer-bearing animals than from normal ones.

In these results and from the additional observation that caloric output remains constant in cancerous animals on a reduced diet (it falls in healthy animals), there is evidence of the autonomy of the tumor from metabolic requirements of the normal system.

Plasma Proteins and Surgery: Ariel (Minnesota U.) has gathered evidence suggesting that during surgery about 19 per cent of the circulating plasma proteins are drawn out of the plasma and into the tissues. Negligible amounts of nitrogen are excreted. This may be an example of the alarm reaction occasioned by surgical trauma. Postoperative saline injections fail to mobilize plasma proteins, as preoperative ones do, and the distribution of water and salt differs markedly from preoperative depositions. Much of the salt and water diffuses into extracellular spaces to produce postoperative oliguria and edema.

Lithosperm: Reports are beginning to come in on lithosperm, a widely available plant product that American Indian squaws used for birth control many years ago. It induces diestrus. Cranston, Kucera, and Bittner (U. Minnesota), acting on the theory that it inhibits gonadotropic-hormone formation or action and thus prevents estrogen formation, tested Lithospermum ruderalis against viral-induced mouse mammary tumors. They found that the drug reduced tumor incidence to one sixteenth of normal in one strain of mice and to less than one fourth in another. Mice on lithosperm diet weighed 18 to 28 per cent less than control animals and consumed 34 per cent less fox chow. The reduction in tumor incidence roughly paralleled the effects of caloric restriction.

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KEEPING UP WITH

Digests from current literature of special importance
in diagnosis and treatment . . .

Why the Low Salvage Rate in Lung Cancer?

The patient, the physician, and the natural history of the cancer all contribute to the low salvage rate in bronchogenic cancer. Of 362 patients seen in the last three and a half years, 180 were clinically inoperable; seventy-five were found to be inoperable at exploration; resection was palliative in half and curative in half of the remaining 107—only 30 per cent had curative treatment. About five months elapsed between onset of symptoms and presentation to a physician, either because the patient took a casual attitude to his symptoms or these, in turn, were apparently trivial. Another six-month period elapsed, on the average, before the correct diagnosis was suspected or made—a total of eleven months lost between onset and institution of suitable treatment.

In most instances the delay was due, not to laxity on the part of the physician, but to incorrect diagnosis and the absence of an early, characteristic clinical pattern: the early diagnosis is frequently that of infection, e.g., viral or atypical or unresolved pneumonia. Also, the prevalence of lung cancer is often not appreciated: it is now the commonest cancer causing death in men, and the greatest number of cases occur between the ages of 40 and 60 years.

Careful roentgenographic studies, bronchoscopy with bronchoscopic biopsy, cytological studies of bronchial secretions and washings and of sputum, and, finally, exploratory thoracotomy

itself are the diagnostic methods available. When careful study still leaves indeterminate a lesion in a man more than 40 years of age, exploratory thoracotomy is mandatory.

Paulson, D. L., and Shaw, R. R.: Early detection of bronchiogenic carcinoma. J. A. M. A. 146: 525-529, June 9, 1951.

Radical Surgery in Uncontrolled Cervical Cancer

Radical surgery appears to have something to offer patients with cervical carcinoma that has not been controlled by irradiation. When the disease is limited to the cervix, patients have been rendered free of clinical evidence of disease for two or more years. Those with recurrent carcinoma involving the bladder or rectum, or both, have been made more comfortable for months following operation than they were before, and some have lived for two or more years, are free of evidence of disease, and are having active and enjoyable existences with return to their normal occupations.

Best results were obtained in those operated on within thirteen months after radiation; those that did not survive for appreciable periods had been irradiated an average of thirty-eight months prior to operation.

Finally, partial or complete pelvic exenteration is indicated in extensive irradiation slough with vesicovaginal and/or rectovaginal fistulas even though viable carcinoma is not present.

Brunschwig, A.: The possibilities of radical surgery in cancer of the cervix uteri recurrent after radiation therapy. Am. J. Roentgenol. 65: 720-722; disc. 722-725, May, 1951.

CANCER

Carcinoma of the Pancreas

Carcinoma of the pancreas comprised 0.61 per cent of 16,650 cases of carcinoma seen from July, 1930, through May, 1949. The average age was 58 years. The ratio of males to females was 1.85:1, in contrast to the female preponderance reported in the Vital Statistics for 1946. The ratio of white to colored was 3.3:1, although their ratio of hospital admissions was 6.2:1.

Lesions were in the head in 70.5 per cent and produced symptoms for an average of thirty weeks; 29.5 per cent were in the body and symptoms had lasted seven and a third weeks. There was an average delay of seven and a half months between onset of symptoms and hospitalization.

Symptoms, in order of decreasing frequency, were: pain, malaise and dyspepsia, weight loss, jaundice, nausea and vomiting, steatorrhea, pruritus, melena, mass, and constipation. Although jaundice was a chief complaint in only six, it developed eventually in about half the patients, 92 per cent of whom had cancer of the head, the rest unusually large or markedly diffuse cancers of the body.

Roentgenological studies were made in seventy-six patients; 21.1 per cent were negative; 53.9 per cent were correctly diagnosed, and the rest described as abnormal but the diagnosis not made. On later evaluation of mucosal change, structural deformity, and abnormal displacements of the duodenum, the correct diagnosis was made in a much greater number.

Ninety-four patients were explored, eight had the tumor resected, forty-one had biliary-intestinal anastomosis as palliation.

Those not treated surgically lived an

average of twenty-six weeks after evaluation; those palliated, twenty-five and a half weeks; five of those resected died an average of fifteen weeks after operation, and one had a recurrence in six months. In all, ninety have died (88.2 per cent), seven are still living (6.8 per cent), and five cannot be traced.

The prognosis in cancer of the pancreas is poor, but since it is now surgically approachable, more effective effort at correct and early diagnosis is imperative.

Broadbent, T. R., and Kerman, H. D.: One hundred cases of carcinoma of the pancreas: a clinical and roentgenologic analysis. Gastroenterology 17: 163-177, Feb., 1951.

Management of Breast Cancer

Only on the basis of both clinical and pathological findings can a breast cancer be classified so that proper treatment can be instituted. The author uses the following classification at the Cleveland Clinic:

Group or Stage I

Skin: Not involved
Tumor: Localized in breast and movable
Metastases: None in axillary nodes or elsewhere

Group or Stage II

Skin: Not involved
Tumor: Localized in breast and movable
Metastases: Few axillary nodes involved; no metastases elsewhere

Group or Stage III

Skin: Edematous; brawny, red induration or inflammation not obviously due to infection; extensive ulceration; multiple secondary nodules
Tumor: Diffusely infiltrating breast; fixation of tumor or breast to chest wall; edema of breast; secondary tumors
Metastases: Many axillary nodes involved or fixed. No clinical or roentgenological evidences of remote metastases

Group or Stage IV

Skin: As in any other group or stage
Tumor: As in any other group or stage
Metastases: Axillary and supraclavicular nodes extensively involved. Clinical or roentgenological evidences of remote metastases

The author recommends excisional biopsy, rather than aspiration, as more reliable. With small tumors, complete excision and microscopic examination

should be done, followed by radical mastectomy if cancer is found, particularly since it is impossible to determine axillary metastasis clinically and it may even escape microscopic examination. Postoperative roentgen-ray therapy is not given in stage-I cancer, since the presence, extent, or site of possible metastasis is impossible to determine. It should be used in stage-II lesions, especially to the axillary and supraclavicular regions, since residual cancer is present in about half the cases; it will increase the five-year-survival rate by 10 to 15 per cent. Again, in stage-III cases, postoperative irradiation will increase the survival rate about 10 per cent.

Preoperative irradiation is not recommended.

Since stage-III and -IV lesions have comprised about 50 per cent of the primary breast cancer seen by the author, the following CRITERIA OF INCURABILITY have been evolved:

The Skin

1. Edema (orange or pigskin) of more than slight extent
2. Ulceration of more than slight extent
3. Brawny red and inflamed, not obviously due to infection

The Breast

1. Diffusely edematous
2. Diffusely infiltrated
3. Secondary tumors
4. Fixation of tumor or breast to chest wall

Metastases

1. Axillary lymph nodes numerous, extensively involved, and fixed
2. Supraclavicular lymph nodes or edema of the arm
3. Involvement of contralateral breast or lymph nodes
4. Remote metastases in bones, lungs, or other viscera

Irradiation and endocrine therapy for palliation are the recommended treatments for incurable patients and have led to about 15 per cent five-year survivals; operation following irradiation is not recommended in these patients. Stilbestrol in 10- to 30-mg. doses daily has resulted in improvement and regression of primary cancers, recurrences, and lymph-node and pulmonary metastases, together with increase in well-being. It is most successful in women 60 or more years old. In younger women, stilbestrol may ac-

celerate the disease. In these, androgens are more effective, as well as in those with osseous metastases. The primary tumors and lymph-node metastases may also be favorably affected. Testosterone propionate, 100 mg. intramuscularly three times a week, is given, although half the dose may be effective. Spectacular relief of pain from osseous metastases may ensue; there may be increase in well-being. Occasionally there is roentgenographic evidence of change in the osseous metastases with apparent new-bone formation. Unfortunately, the entire disease process appears to be accelerated in some patients.

Radiological castration should be considered a form of hormone therapy and should be done in all women who are still menstruating and show criteria of inoperability. It is not advisable to use hormones to control the vasomotor disturbances that may follow such castration.

Portmann, U. V.: Treatment of cancer of the breast. Radiology 55: 819-825; disc. 825-826, Dec., 1950.

Dermatofibrosarcoma Protuberans

The initial lesion of dermatofibrosarcoma protuberans is usually a small cutaneous nodule that appears in adult life, but sometimes is only a flat, reddish-blue or purple mark on the skin at birth or in early childhood, which elevates later. It grows slowly for years, then one or more projecting nodules appear, after which growth is more rapid. As the tumor enlarges, the skin thins and becomes atrophic; slight trauma may then lead to superficial ulceration after which the tumor may fungate as a reddish-brown, granulomatous-like tissue. Only rarely does the tumor metastasize, but, because of its wide infiltration, it is difficult to excise completely, and local recurrence is frequent. In the thirty-nine cases seen at Memorial Hospital, most were located on the chest, back, abdomen, upper part of the thigh, and groin; infrequently the head, scalp, extremities, and genitals are involved. The average

age of the patients was 44 years (14 to 87 years), and the largest single group of cases (fifteen) were in the age group 41-50 years.

Since the tumor is radioresistant, wide surgical excision is the treatment of choice. As far as is known, all but two of the thirty-nine patients are living and well, although recurrence has developed in eight, controlled by reoperation. Neither of the two that died, died of the disease. None has shown metastasis. The longest period of post-operative follow-up without recurrence has been nineteen and a half years.

Pack, G. T., and Tabah, E. J.: *Dermatofibrosarcoma protuberans; a report of thirty-nine cases. A. M. A. Arch. Surg.* 62: 391-411, March, 1951.

Malignant Melanoma in the Negro

Malignant melanoma has been reported to be a rarity in the Negro, yet if the incidence reported in the literature is computed with reference to hospital population, the incidence in the white race is only 1.8 to 4.4 times as frequent as in the Negro. The incidence may more nearly equal that in the white race as standards of medical care for the Negro rise.

In all, 430 cases were collected from the literature including both African and North American Negroes and nine new ones are added. The average age, known in forty-eight, was 45.2 years; in the nine new cases, 51 years (range 28 to 61). There was a slight predominance of males. Four of the cases in the literature were in children: one arose on the knee and metastasized to the femoral lymph nodes; three were of the eye (no mention of metastasis). A history of a pre-existing mole at the site of the malignant melanoma was noted only thirteen times in the literature, occurred in two of the nine new cases, and possibly in a third. The authors have found no benign moles in Negro patients; yet Heuer reported easily detectable nevi in 95 per cent of 200 Sudanese natives taken at random. Three of the nine new cases related the lesion to trauma, and a history of

trauma was found in fifty-seven cases in the literature. The site in 177 of 287 was primary on the foot, thirty-six on the leg. Other common sites were the eye, the skin of the face and head, the finger, and mucous membranes.

Six of the nine new cases were of the foot—three, sole; two, dorsum; and one, subungual; one was on the leg; one each arose from the conjunctiva and nasal mucosa.

In forty-one of sixty-two cases, metastases were to the regional lymph nodes; in nine, were blood-borne as well; in only five were they apparently blood-borne only. In two of the new cases, no evidence of metastasis was found (primary on leg; on nasal septum). The other seven had proved metastases to the regional lymph nodes—the femoral in six.

Morris, G. C., Jr., and Horn, R. C., Jr.: *Malignant melanoma in the Negro; review of the literature and report of nine cases. Surgery* 29: 223-230, Feb., 1951.

Cure of Bladder Cancer

Seven hundred cases of carcinoma of the bladder, treated at the Massachusetts General Hospital between 1934 and 1949, were reviewed to determine why some were easily cured and others not. In all, 135 cases provided suitable microscopic material from total cystectomy, segmental resection, or from deep and adequate biopsies and adequate follow-up for evaluation. Invasion of the bladder muscle was found to be an important feature: when there was no evidence of muscle invasion, there was 64 per cent five-year survival, but only 10 per cent when there was. Of sixteen without muscle invasion, treated by methods other than cystectomy, all survived five years; of twelve without invasion treated by cystectomy, two (16 per cent) survived five years (five deaths were from uremia, one from cerebral accident, one from pneumonia, and three from uncertain causes). When the muscle was invaded, nine (11 per cent) of ninety-one survived five years (seven had subtotal re-

section); when cystectomized, two (8 per cent) of twenty-seven survived and these both had bone metastases.

Lymph-node invasion depends upon invasion of the deep layers of the bladder, since the mucosa has no lymphatics. So far as could be determined, no case without wall invasion had lymph-node involvement. Six of fifteen tumors treated by total cystectomy and pelvic lymphadenectomy did involve the regional nodes. Unless these lymph nodes are removed at the time of partial or total cystectomy, many of these patients are given no chance of cure.

The authors conclude that tumors that do not invade the muscle should be treated, if possible, by methods other than cystectomy; it may be considered if the muscle wall is invaded, but such tumors are difficult to cure by any of the methods presently available.

Kerr, W. S., Jr., and Colby, F. H.: Carcinoma of the bladder: a correlation of pathology with treatment and prognosis. J. Urol. 65: 841-844; disc. 845-849, May, 1951.

Cancer of the Gum

In all, 101 cases of squamous-cell carcinoma of the gum were treated between 1937 and 1944—1 per cent of all cancer cases treated at the Roswell Park Memorial Institute. Positive serology was found in only a few. Poor oral hygiene was found in the majority. Fifty-six lesions were on the lower gum and often involved the buccal mucosa and/or floor of the mouth; forty-five were on the upper and frequently involved the buccal mucosa and/or the palate.

The most frequent symptom was a sore—occasionally severe pain or bleeding; some patients were asymptomatic. Metastatic lymph nodes were present in 30 per cent on admission, and 31 per cent developed them later. All cases were diagnosed by biopsy and the need for biopsy of any suspicious lesion of the gum cannot be too heavily stressed. Careful roentgenograms of the underlying jaw must be made, since prognosis and treatment differ when bone is involved.

This series of cases was treated entirely by irradiation, including radium, radon seeds, and roentgen rays. The five-year-cure rate for patients without node or bone involvement was 36 per cent: nineteen of fifty-three patients. There were no five-year cures in the others. Radiation osteomyelitis occurred in 16 per cent of the cured patients; in three, radiation necrosis was followed by extrusion of the sequestrum and subsequent healing.

The authors recommend surgical excision of the jaw when bone is involved; with neck dissection when the nodes are involved. The treatment of those without node or bone involvement is still being developed.

Mattick, W. L., and Meehan, D. J.: Carcinoma of the gum. Surgery 29: 249-254, Feb., 1951.

Malignant Melanoma and Pregnancy

Although the increase in pigmentation, including darkening of nevi, during pregnancy is well known, it seems not to have excited apprehension—and the transformation of benign nevi to malignant melanomas, the rapidity of their growth, their early dissemination, and the low rate of curability during pregnancy have not been generally known. Among 1050 patients with malignant melanomas, the authors have had thirty-two who have had pregnancy associated in some way with the growth of a malignant melanoma. In ten, the pregnancy was coexistent with active malignant melanoma; eleven observed changes in the nevus during a recent pregnancy; and eleven, treated for malignant melanoma, subsequently became pregnant. Fourteen patients were in their twenties; sixteen, in the thirties. Fourteen patients were dead within three years or less because of growth or metastasis of the melanoma. Fifteen who are living have been treated within the past two years. Two are well, without evidence of residual melanoma for eight and thirteen years after treatment. Twenty-two patients had radical ex-

cision, including excision of the regional nodes; seven had wide local excision; three had palliative roentgen-ray therapy only.

The authors recommend radical surgery, for the tumors are notoriously radioresistant and electrodesiccation is fraught with danger because of the possibility of leaving residual disease behind; finally, clinical attempts to control melanomas with hormones have failed.

Excision of pigmented moles during childhood is recommended since prior to puberty they are rarely malignant. Prepartal examination should include a survey for pigmented moles.

Excision of pigmented moles during childhood is recommended since prior to puberty they are rarely malignant.

Prepartal examination should include a survey for pigmented moles.

Pack, G. T., and Scharnagel, I. M.: The prognosis for malignant melanoma in the pregnant woman. Cancer 4: 324-334, March, 1951.

Natural History of Cervix Cancer

Since a high percentage of carcinoma in situ of the cervix has been found to be already invasive, it may prove to be the usual precursor of cervical cancer. If so, and since it is detected in patients who average eight to twelve years younger than those with infiltrative cancer, it would seem that there may be a long period in which incipient cancer can be detected and treated.

Untreated cancer of the cervix, on the other hand, is a rapidly fatal disease: of 171 such patients, 58 per cent died within one year after onset of symptoms, 82 per cent within two years, and only 4.6 per cent survived five years.

Parametrial involvement by direct extension occurs fairly rapidly: in ninety-one patients treated by radical surgery, it was present in half, but only fifteen (16.5 per cent) showed lymph-node metastasis. Of patients dying of cancer of the cervix, only about half will show metastatic disease outside the pelvis: to periaortic and retroperitoneal nodes, liver, lung, and vertebrae.

The most common cause of death in cervical cancer is either ureteral obstruction or urinary-tract infection. Unless there is hope of curing the cancer, operative relief of such obstruction is of doubtful value.

Twombly, G. H., and Palma, S. di: Growth and spread of cancer of the cervix uteri. Am. J. Roentgenol. 65: 691-697, May, 1951.

Familial Tendency to Breast Cancer

The incidence of breast cancer in four generations of a kindred (all descendants of an individual or a couple) was studied in Utah. The couple had 176 descendants. The wife had breast cancer; three daughters had breast cancer and two sons, cancer of the ear; four granddaughters had breast cancer and one of the grandchildren had fibroadenomas. So far, no cancers have been found in the great-grandchildren. Of her eight brothers and sisters that lived to maturity, there were 775 descendants with three cases of cancer: one of the uterus, one of the breast, and one of the kidney, all in females. On the father's side, a brother apparently died of cancer of the liver; among his fifty-one descendants, a daughter died of cancer of the breast, one of her daughters has had cancer of the breast removed, and another, fibroid tumors removed from the uterus. The granddaughter of still another brother (who had forty-four descendants) had cancer of the nose.

The authors suggest that the father, rather than the mother, was responsible for the inherited tendency to breast cancer and that a multiple genetic factor was at play.

The authors conclude that the type of genetic mechanism involved and its source, maternal, paternal, or both, obviously cannot be determined from the present limited material. Particularly no evidence for or against a milk agent was obtained; it was reported, however, that all members of the kindred had been nursed.

Woolf, C. M., and Gardner, E. J.: The familial distribution of breast cancer in a Utah kindred. Cancer 4: 515-520, May, 1951.



a glance . . .

**one-minute abstracts
of the current literature
on cancer . . .**

Multiple Colon Cancers

Although it was formerly considered that having one cancer tended to confer immunity against the development of another, not metastatic or a recurrence, evidence is accumulating that the opposite may be true, and an increasing number of reports of synchronous cancer and of a new cancer appearing sometime after a previous one (metachronous cancer) are increasing. Synchronous cancers are not rare in the large bowel, particularly in the group of cases called "familial polyposis." For this reason, the entire colon and rectum should be studied when one cancer has been found.

Within the last few years the authors have had seven cases of metachronous cancer of the large intestine developing from two to eighteen years after operation for the first one. They therefore recommend that any patient who has had one such cancer should have adequate proctoscopic and radiological follow-up examinations every six months to one year for the rest of his life.

Rankin, F. W., and Conger, A. B., Jr.: Metachronous carcinomas of the colon. J. A. M. A. 146: 918-920, July 7, 1951.

Rising Incidence of Lung Cancer

Although most age curves of cancer death rates in different age groups rise continuously, only the steepness becoming less abrupt in later years, the age curve for lung cancer appears to show an abrupt decline at about age 55. The authors contend that the curves should not be plotted by decades within a year—but by comparing the same decade through various years; i.e., all those dying of lung cancer between the ages of 45 to 54 years in different years. When this is done, the age curve shows a steady increase from age 35 to age 75 and more—and was greater in any given decade than it had been in the same decade in any previous calendar year. There is a similar rise, although lower absolute incidence, in female lung cancer.

Korteweg, R.: The age curve in lung cancer. Brit J. Cancer 5: 21-27, March, 1951.

Anemia in Advanced Cancer

The anemia of patients with advanced cancer has usually been considered due to bone-marrow invasion unless resulting from obvious blood loss or hemolysis. Of 193 patients with

advanced cancer, 116 had a hemoglobin of 80 per cent or less. The anemia was due to blood loss alone in 28.5 per cent; to hemolysis in 2.6 per cent; was myelopathic in type in 56 per cent; and of myelopathic type complicated by blood loss in 12.9 per cent. Of the 193, fifty (25.9 per cent) had evidence of osseous metastases; twenty-four of these were anemic.

In sixteen anemic patients, eight with, and eight without, bone metastases, 60 to 240 mg. of cobaltous chloride was given daily to see whether the bone marrow would respond to this hematopoietic stimulus.

The responses obtained indicated that the presence of bone metastases usually has no relation to the development of anemia in cancer patients, that the anemia is not due to replacement of bone marrow by neoplastic tissue, and that cobalt may cause increased erythropoiesis regardless of bone metastases. Cobalt therapy fails to produce subjective improvement and often causes symptoms referable to the gastrointestinal tract and, in some instances, suggestive of angina pectoris.

Shen, S. C., and Homburger, F.: The anemia of cancer patients and its relation to metastases to the bone marrow. J. Lab. & Clin. Med. 37: 182-198, Feb., 1951.

Office Tests for Pheochromocytoma

More and more, pharmacological tests for pheochromocytoma are being made routinely on all hypertensive patients. A number of the test drugs have given rise to severe and uncontrollable, but transient, hypertension. Recently, the Council on Pharmacy and Chemistry of the American Medical Association has allowed one to be reported as "promising and relatively safe"—pipridylmethyl benzodioxane (933F).

Untoward reactions occurred in four of eighteen hypertensive and four normotensive patients in the course of fifty-six separate tests. One patient developed a rise in blood pressure to more than 300 mm. of mercury immediately after 3 mg. and, a half hour later after 5 mg., of 933F; a second received 17

mg. and promptly developed acute pulmonary edema. The third had anuria of fourteen-hours' duration after Dibenzamine. The fourth had a marked hypotensive reaction after a test with tetraethylammonium bromide.

It is evident that these tests cannot be made as a routine office procedure without recognizing that an occasional untoward reaction may occur.

Bierman, H. H., and Partridge, J. W.: Untoward reactions to tests for epinephrine-secreting tumors (pheochromocytoma). New England J. Med. 244: 582-586, April 19, 1951.

Nipple Discharge

Nipple discharge was found in ninety-seven of 1048 breasts from 990 patients, including two instances among twenty-eight lesions of the male breast. The primary lesion in 47 per cent was intraductal papillomatosis with or without other changes of chronic cystic mastitis; in only five were the papillomas solitary. Carcinoma was the primary disease in 25 per cent and it was usually entirely or largely intraductal. Chronic cystic mastitis without marked intraductal papillary proliferation occurred in 9 per cent. The other cases comprised a variety of inflammatory lesions dependent upon ductal stasis and distension. Similar stasis and distension were found in the cases of papillomatosis and carcinoma.

In about half the cases, the discharge was bloody; in the rest, serosanguineous or serous. The type of discharge was not a reliable diagnostic aid.

In most instances, the source of the discharge could be localized to a single duct or duct system; except for carcinoma, excision of the duct or duct system then constitutes adequate treatment. Because of the 25 per cent incidence of carcinoma in breasts with discharging nipples, all must be carefully examined to rule out carcinoma. Although carcinoma is usually accompanied by a mass, it was not in two of the cases studied.

Fitts, W. T., Jr.; Maxwell, J. D., and Horn, R. C., Jr.: The significance of nipple discharge. Ann. Surg. 134: 29-39, July, 1951.

Radiogallium in Early Diagnosis of Bone Tumors

Experimentally, radiogallium (Ga^{72}) is known to localize selectively in osteoid tissue, particularly in centers of osteogenesis. It localized selectively in seven patients with osteoblastic, and five of eight with osteolytic, primary or secondary bone neoplasms after 300 to 400 mc. tracer doses were given intravenously. Localization, determined by Geiger-Müller counter, was about twenty times as great in the lesions as in adjacent bone. One of the negative cases had no bone lesions visible roentgenographically; one, rarefaction of the humerus; the third, an ischial-tuberosity lesion roentgenographically, was too close to the bladder to localize. The principal part of the injected Ga^{72} is excreted in the urine in the first six hours; osteogenic lesions tend to retain more than do osteolytic. Early metastases have been identified by this method before they were visible roentgenographically.

Mulry, W. C., and Dudley, H. C.: *Studies of radiogallium as a diagnostic agent in bone tumors. J. Lab. & Clin. Med.* 37: 239-252, Feb., 1951.

Cancer of the Pancreas

Since patients with carcinoma of the body of the pancreas usually do not develop jaundice and hepatic insufficiency, they probably live longer than those with cancer of the head; this may also explain why they more often develop metastasis and venous thrombosis. Of the 202 cases of pancreatic cancer studied at autopsy, 144 had occurred in men, fifty-eight in women. The age range was 30 to 89 years, with more than two thirds between 50 and 69 years. Acinar carcinomas comprised 21 per cent of the cancers in the women, only 10 per cent of those in the men. The cancers in the body of the pancreas were somewhat larger than those in the head—and size seemed related to grade of malignancy. The grade did not seem to have any relation to the incidence of

jaundice, invasion or dilatation of the common bile duct, or invasion of the perineural lymph spaces—but histological type did: they were more common in ductal cancers. Fat necrosis and suppuration were more common in cases of acinar origin, which suggests that acinar cancer is capable of functioning and producing digestive enzymes.

Miller, J. R.; Baggenstoss, A. H., and Comfort, M. W.: *Carcinoma of the pancreas; effect of histological type and grade of malignancy on its behavior. Cancer* 4: 233-241, March, 1951.

Cytological Diagnosis of Prostatic Smears

Carcinoma of the prostate sheds cells sufficiently characteristic to be recognized microscopically, provided the patient has not received estrogen therapy. If he has, degenerated malignant cells can be found; these disappear if the response to estrogen is good (see CA, p. 109, May, 1951). Smears were obtained by careful complete prostatic massage from forty-four patients with carcinoma (nineteen histologically, and twenty-five clinically, proved) and from 102 with benign lesions. Thirty-eight of the forty-four smears from the cancer cases were positive (Papanicolaou technique), four contained cells suspicious of cancer, and two showed no malignant cells (false negatives). Of those with benign lesions, only one smear was reported as showing cancer cells (false positive); postoperatively the diagnosis was benign prostatic hypertrophy. The smears in ten of sixteen patients considered clinically suspicious of carcinoma have remained negative; two had atypical cells; four, malignant cells.

The material for cytological study is readily available in office practice and makes possible cell study from all parts of the gland connected to the urethra by patent ducts. The smears must be read by a thoroughly experienced person.

Peters, H., and Young, J. D.: *Prostatic smear in cancer diagnosis. J. A. M. A.* 145: 556-557, Feb. 24, 1951.

Rehabilitation of the Laryngectomee

Hayes Martin, M.D.

Although there still may be some difference of opinion as to the relative indications for radiation and surgery respectively in the treatment of larynx cancer, nevertheless, there can be no question but that, in certain cases, total laryngectomy is the only solution. A recent survey has shown that in 1947 this operation was performed at least 846 times in the United States,¹ and it is probable that the number is steadily increasing.

When total laryngectomy is advised, the family doctor will often be present at the consultation, and the patient may hesitate to consent to the procedure without the approval of his personal physician. Following the operation, the family doctor can play a significant role in the rehabilitation period, both in keeping up the patient's morale for learning a new method of speech and in the social and occupational readjustments that may be necessary under new and somewhat altered conditions of life. The purpose of this communication is to discuss both the surgical and psychological aspects of total laryngectomy from the standpoint of the patient and his family doctor.

Preoperative Preparation

When, after adequate preliminary examination, a surgeon has recommended complete removal of the larynx, he usually first seeks the approval of the referring physician (family doctor) and responsible members of the family. If the procedure is accepted by them, it next becomes necessary to obtain the consent of the patient, and, in so doing, the question often arises as to how bluntly and directly the patient should be apprised of what he actually faces. Many laymen

are sufficiently intelligent, well informed, and emotionally stable to understand the merits of the proposition. In this connection, it must not be assumed that common sense, intelligence, and emotional stability are synonymous with a high degree of education, social position, or financial success. Bluntly stated, the facts are as follows: the disease is cancer; the larynx must be removed; following the operation the windpipe will open into the neck; breathing will no longer be carried out through the mouth and nose; normal speech will be permanently lost, and artificial speech must be learned by one of several methods. On the encouraging side are the facts that the operative mortality is small (1 to 2 per cent), the hospital stay about ten to fourteen days, and lastly, that the patient can regain the faculty of speech. Even with well-balanced patients it is probable that little is to be gained by too elaborate discussion of all the morbid details.

The surgeon, the family, and the family doctor may decide that the reaction to any blunt statement of the facts would be distinctly unfavorable in the case of the less intelligent, poorly integrated, senile, or indecisive patient. In these cases, some or even most of the morbid details may be justifiably withheld, and the patient need only be told that in order to obtain relief he must have an operation, following which his speech will be lost for a time, but that with practice he can learn to speak again. The welfare of many patients faced with the ordeal of total laryngectomy is undoubtedly better served if, with the approval of responsible members of the family, they can be induced to accept the operation with less than full knowledge of the details.

In the medical literature on larynx cancer one frequently finds reference to patients who have "refused laryngectomy." To a surgeon experienced in the handling of cancer patients, it will be obvious that, in many instances of patients who are alleged to have "refused" necessary operations, the psychological management was inept, blunt, and therefore ineffective. In clinics, where this problem frequently arises and where due consideration is given to the vagaries and frailties of human nature, it is uncommon that a patient refuses a necessary operation. Many patients facing total laryngectomy are much encouraged by meeting with a patient who has already undergone the procedure and who has learned to speak again. Others are entirely incapable of an objective appraisal of the situation, and such an encounter before the operation would only cause increased anxiety.

The Immediate Postoperative Period

Despite excellent preoperative psychological preparation, there will sometimes be considerable anxiety and depression when the patient, on awakening from the anesthetic, finds himself breathing through the tracheostomy, rather than through the mouth and nose, and unable to speak. This emotional state may last for several days, and much can be done to counteract it through skilful handling of the problem by the nurse, the family, and the surgeon and his associates. If the total speech disability is accepted by all concerned as a natural consequence of the treatment rather than as an overwhelming tragedy of a permanent nature, and if, whenever the question is raised, full confidence is expressed that speech will soon be regained, much can be accomplished to lessen the grimness of this phase of the experience.

The family will need to be assured that a significant part of the mental depression is apparent, rather than real,

and that the silence on the part of the patient is actually a physical disability, rather than a mental reaction. If possible, arrangements should be made within a few days after operation for a speech instructor (himself a laryngectomee) to visit the patient and discuss the plans for future instruction. Much is gained if the patient is confident that, as soon as wound healing permits, he may begin instruction to regain his speech.

Speech Re-education

Some laryngectomees acquire esophageal speech automatically without any outside instruction by accidentally discovering first that they can produce the sound of an ordinary belch, and, then, that they can articulate this sound to produce words. Not long after the first laryngectomy was performed by Billroth about seventy-five years ago, the phenomenon of esophageal speech was discovered by a patient and reported by his surgeon in the medical literature. In the case of most patients, organized instruction is advisable; otherwise the new facility of speech by one or the other method may be long delayed or sometimes never acquired. Such training of the laryngectomee is best obtained from someone who himself has gone through a similar experience and preferably carried out by the group method of teaching, rather than by individual instruction. In most large cities where laryngectomies are performed in fair numbers, there are organized classes in nonprofit institutions where such instruction is given. After the operation, the laryngectomee should register with such a group as soon as possible. If the physician does not know of any organized group for speech training, he may get such information by calling the nearest office of the American Cancer Society or by writing the Professional Service Section, Medical and Scientific Division, American Cancer Society, 47 Beaver St., New York 4, N. Y.

Methods of Artificial Speech

There are at least three practical methods of artificial speech following laryngectomy, which vary relatively in the degree of their functional desirability and usefulness to the individual. No one single method can fairly be advanced as the complete solution for all patients. Each one of these respective methods has been found to be the best solution in the case of certain individuals, some of whom use more than one method, depending upon the requirements of the immediate environment. All methods of artificial speech depend upon the production of a sound and its conduction to the mouth where, by the use of the tongue, lips, and teeth, it is articulated into speech.

Esophageal Speech. This method is

undoubtedly the most useful and best suited to the majority, but it can be acquired to a satisfactory degree by only about 80 per cent of all laryngectomees. (Fig. 1.) The sound is produced by drawing air into the esophagus (rarely as far down as the stomach) and expelling or eructing this air so as to produce a vibration of the soft tissues surrounding a relatively narrow aperture at about the level of the cricopharyngeus muscle, or, in some cases, at a higher level in the hypopharynx. When these tissues vibrate, a sound is produced identical with the *belch* in a normal person. If the laryngectomee can belch, he can articulate the sound into speech. Conversely, if he cannot learn to belch, he cannot acquire this method of speech. The popular fiction that some laryngectomees learn "to speak



Figure 1. G.H., aged 46, had a total laryngectomy on July 5, 1950. He acquired esophageal speech within a few weeks after his operation and returned to his former position in a brokerage office. He has carried on successfully at his work *even though much of his business is transacted over the telephone*. Note that the shirt collar is buttoned up so as to conceal the tracheostomy opening.

with the stomach muscles" is, of course, pure nonsense.

It should be emphasized that the mechanism of esophageal speech is neither complicated nor difficult. Certain individuals whose motives may not always be entirely unselfish claim to have invented a new method of artificial speech (as for example, "bucco-pharyngeal") and advance complicated discussions of its mechanism and of the methods of re-education. All such

producing sound for artificial speech by a vibrating membrane or reed. At any rate, many of these devices have been made by isolated mechanics, but there was no standardization until about twenty-five years ago when a laryngectomee patient of the late John E. Mackenty aroused the interest of an official of the Western Electric Company, a subsidiary of the American Telephone and Telegraph Company. As a result, since 1926, a standardized



Figure 2. The reed larynx consists essentially of a metal chamber with a vibrating reed.

Figure 3. G.H. demonstrating the use of the reed larynx. One end of the device is held against the tracheal stoma and air is led to a metal chamber containing a reed and thence the sound is conducted to the mouth where it is articulated into speech. Some patients find this device unsightly and, therefore, unacceptable.

claims are a perversion of the truth and therefore unfortunate.

Occasionally, a laryngectomee is able to produce a belch, and therefore to speak, within a few days after the operation. Others require months of effort. In some of the more radical operations, portions of the pharyngeal wall and upper esophagus are removed with the larynx, and, since the pharyngeal constrictors are lost in these patients, no narrowed point is left in the gullet past which air can be expelled to produce vibration and a sound. Most of such individuals can never acquire esophageal speech.

The Reed Larynx. It is difficult to establish who first conceived the idea of

form of reed larynx (Figs. 2, 3) has been constructed by that company and sold at the cost of production. There is little or no cost in maintenance, and the patient usually learns to reservice the instrument himself. The device may be obtained for \$19.60 by any laryngectomee who presents a letter from his doctor at the New York Telephone Company offices, 140 West Street, New York City. The instrument is also distributed through the branches of the Bell Telephone Company throughout the United States, and, in any community, information may be obtained from the local Bell System company.

In this mechanism, the column of

air from the tracheal stoma is conducted to a metal chamber containing a metal reed that vibrates to produce a sound. The sound is then led through a rubber tube into the mouth where it is articulated to form speech.

This method can be learned by any laryngectomee in about a half-hour's time, although many find it unacceptable since a noticeable and somewhat unsightly piece of apparatus is held in the patient's hand, one end is pressed

many. The method is probably about third in its acceptability to the average patient, but nevertheless, there are individuals unable to acquire esophageal speech who prefer the electrolarynx to the reed larynx. Like this, its use can be learned in about a half-hour.

One of the greatest objections to the device is that it is somewhat expensive, prohibitively so to many. Each instrument costs \$100, and, since repair and servicing is required after a few months'



Figure 4. The electrolarynx consists essentially of a battery-powered buzzer that is held against the side of the throat.

Figure 5. G.H. demonstrating the electrolarynx. The battery is carried in the pocket and the cord-connected buzzer is held against the side of the neck.

against the tracheal stoma and the other, ending in a rubber tube, leads to the mouth. The volume of sound is considerable, and many patients who acquire esophageal speech of only low intensity suitable for ordinary purposes employ the reed larynx when a higher volume of sound is necessary in noisy environments (trains, busy streets, noisy stores, etc.).

The Electrolarynx. This device, powered by a pocket battery, consists essentially of a buzzing mechanism, which when pressed against the side of the neck produces a sound that is transmitted through the soft tissues into the pharynx and oral cavity, there to be articulated into speech (Figs. 4, 5). When used, it produces a continuous buzzing sound that is objectionable to

use, more than one instrument is necessary. In addition, battery cost will vary from \$15 to \$25 a year, and there is a charge for reservicing. It may be obtained from the Aurex Corporation, 511 Fifth Avenue, New York City.

The Family Doctor and the Problem of the Laryngectomee

Provided that he concurs in the surgeon's opinion, the family doctor can play a prominent role in encouraging the patient to accept a necessary operation without delay. He may assist in pointing out to the patient and the family that, under certain conditions, the preservation of life itself is the first consideration and that to such an end the loss of the larynx may be a reason-

able price to pay. Furthermore, he can be of assistance during the immediate postoperative period following laryngectomy by assuming a confident attitude toward the future so as to reassure the patient that he will not only learn to speak again but also to resume a fairly normal mode of life.

In the intermediate postoperative period he can be of assistance in encouraging the patient to seek instruction for speech training. He should use his influence to see that the patient finally accepts and perfects himself in one or other of the available methods of artificial speech. The patient should not be misled by overenthusiastic proponents of a single method, who may erroneously insist that one alone and in particular is worth while. As a matter of fact, if the patient acquires artificial speech and is satisfied, it makes little difference which method he chooses as being suitable to his own case. At any rate, it is the responsibility of the surgeon and the family doctor and/or of the social-service facilities to assist and co-operate in the rehabilitation.

A patient was recently found to have been occupying a bed in a New York

City institution for terminal care of cancer six years after total laryngectomy. The ostensible reason for this continuous hospital stay was that he could not speak, and it was therefore assumed that he could not work and, consequently, that he was a candidate for continuous custodial care. Investigation revealed that no one had ever questioned the totality of his disability or his right to custodial care for as long as he lived.

In brief, the patient requiring total laryngectomy needs and deserves sympathetic understanding and careful handling from the time the operation is proposed throughout his hospital stay and in the rehabilitation period when he learns artificial speech and readjusts himself to altered conditions. In this problem the family doctor can play a prominent role, and he should join with the surgeon in providing the necessary encouragement and counsel so that the patient may avail himself of all possible facilities that will assist in his rehabilitation.

Reference

1. Martin, H.: *The incidence of total laryngectomy*. *Ann. Otol., Rhinol. & Laryngol.* 59: 359-363, 1950.

ATLAS OF TUMOR PATHOLOGY

The *Atlas of Tumor Pathology*, consisting of thirty-nine fascicles covering every variety of tumor, is currently under preparation by the Sub-Committee on Oncology of the Committee on Pathology of the National Research Council.

Fascicles 6 and 29 are in print. These are respectively *Tumors of the Peripheral Nervous System*, by Arthur Purdy Stout, M.D., and *Tumors of the Adrenal*, by Howard T. Karsner, M.D.

The cost per copy is \$1.00. Fascicles may be obtained from the

American Registry of Pathology
Armed Forces Institute of Pathology
Washington 25, D. C.

CANCER CLINICS

Surgery and Prosthesis in Jaw Reconstruction

Milton T. Edgerton, Jr., M.D., and James E. Pyott, D.D.S.

Location: Johns Hopkins Hospital Surgical Clinic

Time: June 6, 1951

Case 1. History No. 570613. A 27-year-old, married colored woman presented herself with a four-months' history of a painless enlarging mass of the right upper jaw (Fig. 1, A). The present illness began with pain in the region of the right upper first and second molars. These were extracted by her local dentist without relief. There had been no bleeding, headache, nasal obstruction, or visual symptoms. Laboratory studies showed a homogeneous radio-opacity in the region of the right antrum, with no evidence of extension into the orbit. Serum test for syphilis was negative; blood chemistries including calcium were normal. The diagnosis was ossifying fibroma with possible sarcomatous degeneration.

DR. MILTON T. EDGERTON: The possibility of malignant tumor here with the definite involvement of bone precluded any use of roentgen-ray therapy as a curative measure. The clinical picture was very similar to localized Paget's disease of the maxilla, and a high percentage of such patients will ultimately show a sarcomatous change. The absence of orbital involvement makes it possible to remove this type of lesion surgically with very minimal permanent deformity. There was definite evidence, however, of involvement of the pterygoid plates and malar bone,

and we thought it therefore unwise to attempt removal of the tumor without an external incision. The right cheek was reflected by an incision splitting the upper lip and carried around the nose up to the inner canthus, and the tumor was removed with the aid of osteotomes (Fig. 1, B). A skin graft was then taken from the thigh and immediately applied to the inner surface of the cheek, pterygoid fossa, and floor of orbit (Fig. 1, C). We have found that this prevents contracture and later deformity. The cheek was then resutured over an iodoform gauze pack (Fig. 1, D). Ten days after operation the pack was removed and the previously prepared dental prosthesis was inserted (Figs. 1, E, F, G). The patient was then ready for discharge and has had no difficulty with either speech or eating since operation.

DR. JAMES E. PYOTT: The upper jaw in such cases proves very suitable for prosthetic restoration because of its normal lack of mobility. When the soft palate is not involved by tumor, a light acrylic prosthesis gives an almost perfect speech result. Such a prosthesis may even be worn by patients with edentulous upper jaws.

DR. EDGERTON: The surgical reconstruction of the upper jaw is quite feasible, but it requires several plastic operations over a number of months, and the

From Department of Plastic Surgery, Johns Hopkins University, and the Johns Hopkins Hospital, Baltimore, Maryland.

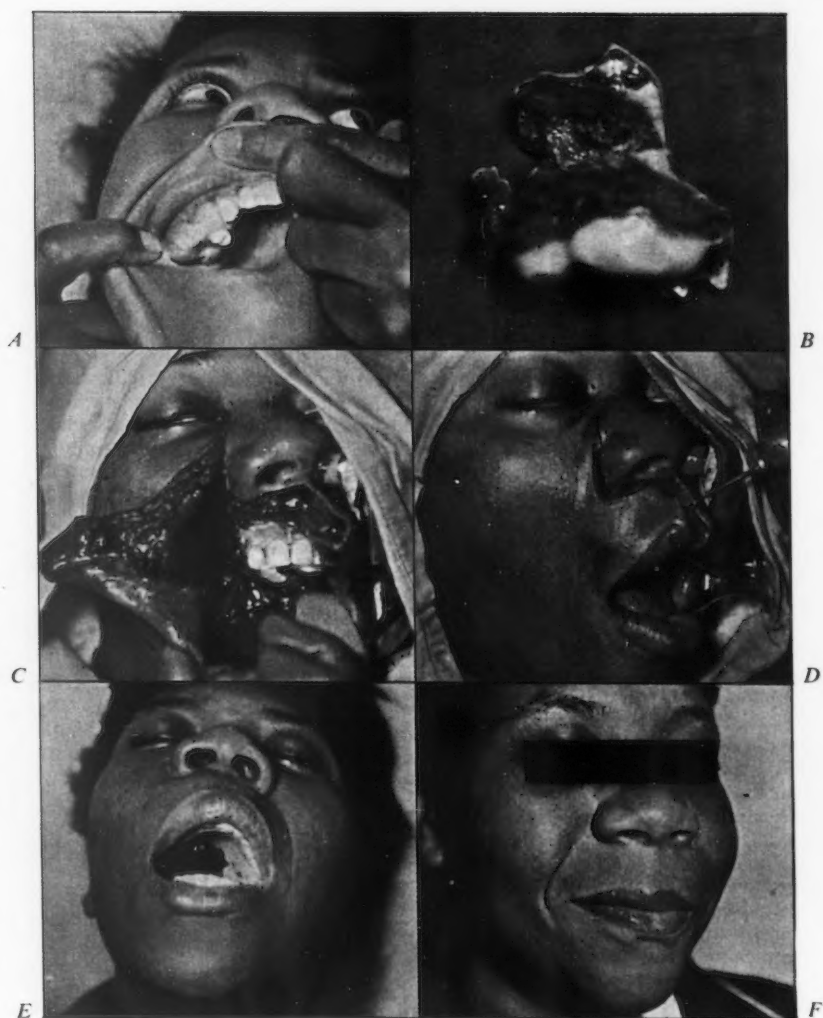


Figure 1, Case 1

A. Twenty-seven-year-old patient with bony enlargement of the right upper jaw. The molar teeth had been extracted by a local dentist.

B. Specimen removed to show right maxilla including half of palate and right antrum.

C. Surgical exposure. Skin graft taken from thigh may be seen sutured into position on inner surface of the cheek, extending back to the line of the pterygoid fossa.

D. Method of closure of cheek.

E. Obturator in position in mouth. Dental compound extended to close all open areas. After several adjustments, a hollow-ball obturator is fitted to the surgical defect.

F. Patient, two weeks after operation. The prosthesis is in place. Speech and swallowing are normal.



Figure 2, Case 2

- A.* Tumor of left mandible being removed through a cervical incision.
- B.* Gross specimen of myxangioma of left angle and ramus of mandible.
- C.* Guide plane shown in position after operation on right side of jaw. Ivy loop temporarily used on left side. Jaw thus held in mid-line.
- D.* Same incision has been used to insert a composite graft of rib and costal cartilage to reconstruct left mandible.
- E.* Postoperative front view showing symmetry of face.

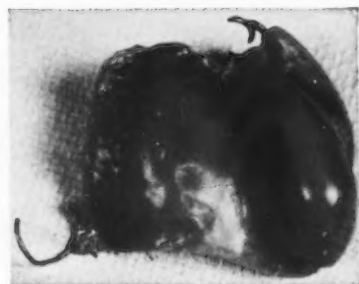


Figure 1, Case 1. G. Final hollow-ball acrylic obturator. Retention is by means of gold clasps for teeth and saddle casting.

ultimate result to the patient is little if any better than that offered by a simple prosthesis. The patient's tumor was not epithelial in origin, and we did not feel that a neck dissection was indicated in the absence of cervical lymph-node enlargement.

Case 2. History No. 486044. The patient was a 31-year-old white woman who presented herself with a nine-months' history of a tender lump near the right angle of her mandible. This had caused the spontaneous loosening and loss of the second and third right lower molars. The right lower lip was numb. There had been no ulceration within the mouth, and the patient had lost no weight.

Röntgenograms of the mandible showed a rarefied lesion involving the angle and ramus. The preoperative impression was adamantinoma.

DR. EDGERTON: As with most jaw tumors, bone involvement is a primary indication for surgical treatment. The extraoral approach has proved to be much more satisfactory than the intraoral route. A low cervical incision was made in the right neck, care being taken to preserve the lowest branch of the facial nerve. The tumor was seen to be contained within the cortex of the mandible and was removed with an adequate margin. (Fig. 2, A.) The patho-

logical report showed this to be a myxangioma (Fig. 2, B). A section of oral mucosa had to be removed, and the wound was then closed in layers with drainage. Jaw fixation was maintained by means of a guide plane (Fig. 2, C) until all edema had subsided. We then replaced the removed segment of mandible by means of a costal cartilage and rib graft, fashioned so as to reconstruct the temporomandibular joint. (Figs. 2, D, E.) In this case, immediate bone grafting was thought not advisable, because of the necessity for opening the oral cavity on removing the tumor. We have found it most important to maintain moving vertical stabilization of the mandible during the period between tumor removal and bone-graft replacement. If a guide plane is worn for several months, while the soft tissues stabilize, it can often be removed and still keep good jaw position.

DR. PYOTT: When one side of the lower jaw is removed surgically, in a patient possessing the normal complement of teeth, the guide plane is probably the simplest and most useful dental means of maintaining position of the remaining jaw. It may often be combined with a splint of acrylic that fits down into the space left by removal of the mandible (Figs. 3, A, B, C). It is frequently desirable to attach this guide plane into position at time of operation. Figures 3, D, E, F show the guide plane on the model. If the resection is posterior to the bicusps, the guide plane can be of the fixed type and inserted before operation, or intermaxillary wires and rubber-band traction can be used to retain normal jaw position.

DR. EDGERTON: When one has to resect the mandible in an edentulous patient, the use of a guide plane is not possible. In such cases, we have used either immediate replacement of the mandible by means of stainless-steel bars, or we have applied a modified Haynes apparatus externally to the maxilla and mandible and thus created an extraoral guide plane.

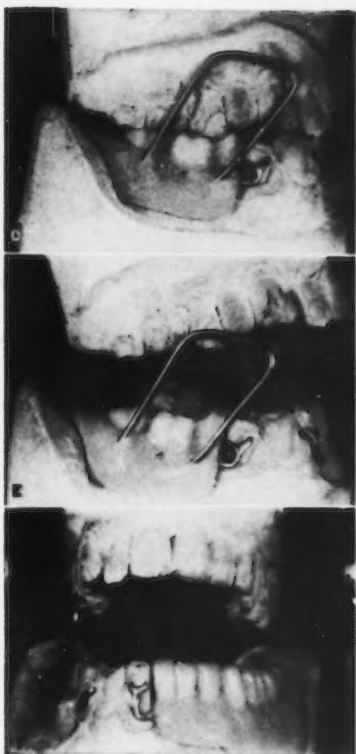


Figure 3. *A.* Master casts of jaws in occlusion showing area to be removed from mandible.

B. Showing area cut from cast that is to be removed surgically.

C. Splint and guide plane that were inserted after surgical removal of part of mandible at time of operation.

D. Guide plane in position with mouth closed.

E. Same patient with mouth open to show sliding action of metal arm against upper teeth.

F. Front view of guide plane. It may be seen that length of metal arm is limited only by depth of buccal sulcus.



Figure 4. Guide plane and prosthesis used to fill in resected area and maintain normal vertical dimension and position.

DR. PYOTT: The building up of contour by an intraoral prosthesis usually requires adequate remaining teeth for attachment of the prosthesis, and replacement of oral mucosa to allow lateral movement of the cheek. No dental plate can overcome tightly contracted scar. Figure 4 shows the upper and lower prostheses utilized in a patient who had a massive resection of the mandible for adamantinoma. Figures 5, A, B show a patient with a primary carcinoma of the soft palate and the type of prosthesis used to replace the soft palate following surgical resection. The problem of velopharyngeal closure here is similar to that encountered in some cleft-palate patients. The use of a prosthesis is of utmost importance in the successful care of many patients who have had oral and facial cancer removed or destroyed. Patients who have suffered cosmetic disabilities must

be returned to society as nearly normal as possible; i.e., their jaws or remaining parts of bone must be retained in a position close to physiological function by aid of a prosthetic appliance, skin or bone graft, or other reconstructive surgery, if necessary. Each case presents a problem of its own. It is essential that a definite routine be followed in all cases, with co-operation between surgeons, radiologists, and prosthodontists. The following basic rules must be followed to produce satisfactory results.

1. Upon admission to the hospital a full-mouth, and extraoral, roentgenograms are made. Impressions of the maxillary and mandibular ridges, the surrounding tissues, and remaining natural teeth are taken with any good impression material, such as the hydrocolloids, alginates, or plaster; master casts are poured in artificial stone and mounted with correct centric relation on an articulator.
2. In cases involving lower jaws, the ends of the mandibular fragments should be held apart mechanically, in the normal position maintained by the muscles and intact bony arch before surgery. The normal occlusal relation of the remaining teeth must be maintained by adding artificial teeth, if necessary, to the appliance.
3. When bone and soft tissue are surgically removed, in cases involving the upper jaw, obturators, stents, and Gunning splints are made for protection of new tissues and open areas during healing. These appliances also keep food and liquids from passing through the nasal orifice and permit the adequate consumption of food during convalescence.
4. Finally, a finished prosthesis permanently maintains the normal facial contours and the normal function of the jaws. Sometimes these appliances may include buccal guide planes, space retainers, hollow-ball and solid obturators, and sections replacing lost parts and lost teeth.



Figure 5. *A.* Area of soft and hard palate involved by primary adenocarcinoma.

B. Obturator replaces resected palate and maxilla. Cast gold in hard-palate area. Clasp retention. Acrylic used as obturator in region of soft palate.

Summary

DR. EDGERTON: It might be said in summary that the surgeon treating tumors of the upper or lower jaw today will find that the help of the prosthodontist is an invaluable aid in acquiring maximum functional results. The particular anatomical requirements of each case must dictate whether the primary

reliance should be on prosthetic or living-tissue restoration. Reconstruction with living tissue yields an oral cavity that enjoys better hygiene and does not depend on the permanent retention of teeth. However, this often requires prolonged or elaborate surgery, which may not be reasonable in view of the particular patient's age or his special needs.

One of the greatest contributions the practitioner of medicine can make in the struggle against cancer quackery is to support and relieve his hopeless, helpless cancer patients to the end.

IVAN H. SMITH, M.D.
London, Ontario, Canada

Rehabilitation of President Cleveland Prevented International Monetary Crisis

Unknown to any but the grave men aboard, the *Oneida*, proceeding at half speed up the East River, had been converted into a hospital ship, and extensive preoperative plans had been made prior to the yacht's departure. These men on that day of July 1, 1893, were charged with the destiny of our country, for the life of a man was to be weighed against an incipient political revolution. The patient was Grover Cleveland, President of the United States. The operation was the removal of his left upper jaw, which was the seat of a malignant tumor.

The political situation at that time was one of serious financial unrest. The heavy United States exportation of gold, the lack of confidence in public credit because of a shortage of gold in the Treasury, and the fear of a silver basis helped precipitate a disastrous panic in which Mr. Cleveland was an important stabilizing and controlling influence in favor of the gold standard. His evident health and well-being therefore were of paramount importance. A special session of Congress had been called for August 7, which Cleveland hoped would repeal, absolutely and uncompromisingly, the Sherman Act—an act imposing additional yearly purchases of large amounts of silver.

If the dangerous nature of the operation had become known, the public would at once have jumped to the conclusion that the President was doomed and would have swung over to the side of Mr. Stevenson, the Vice-President and a strong silver man. This then was the threatening situation when Dr. Bryant and Dr. Keen operated. Their job not only called for the secret restoration of the health of the President, but also demanded every ounce of precaution to avoid serious postoperative complications, and to assure the re-

sumption of his activities within six weeks, before Congress met in special session.

Under nitrous oxide-gas anesthesia, the two upper left bicuspid teeth were extracted. Ether was substituted, and the entire left upper jaw was removed from the first bicuspid tooth to just beyond the last molar tooth. A small portion of the soft palate was removed, but the orbital plate was left intact. The antrum was found to be partly filled by a gelatinous mass, grossly sarcomatous in nature. The specimen was preserved, and, although confirmed at the time to be malignant, subsequent re-examinations of the tissue have been impossible. The entire operation was done within the mouth, thus avoiding an external scar as visible evidence of an operation, which aided greatly in keeping the operation a secret. As the President's speech was wholly unintelligible following the operation, this was speedily and expertly remedied with an artificial jaw of vulcanized rubber, which supported the cheek in its natural position. The President's speech was excellent, even its quality not having been altered.

On July 17, additional suspicious tissue was removed under the same secret precautions, and twenty days later President Cleveland arrived in Washington to direct the strategy of the repeal of the Sherman Act. The law was repealed; and it is generally conceded that had Cleveland's opponents suspected the true state of affairs concerning his physical condition, the gravity of the consequences would have been unpredictable.

Cleveland died fifteen years later of cardiovascular-renal disease, apparently uncomplicated by anything that resembled either recurrence of the original tumor or metastasis from it.

Rehabilitation after Colostomy*

Adjustment to the Dry Colostomy

By Patients Colostomized Five or More Years Ago

Arthur M. Sutherland, M.D.

Under ideal conditions the dry colostomy and its management can be nothing more than a disagreeable nuisance, without impairment of earning power or restriction of recreational or social activities. It should never be allowed to become a major catastrophe.

The adjustments to the dry colostomy made by patients who had abdominoperineal resections of the rectum five or more years ago are being studied at the Memorial Center for Cancer and Allied Diseases. All in the group manage the colostomy by irrigations at more or less regular intervals by the Binkley irrigating apparatus.

Considerable insight has been gained into the problems that these patients face. Although the reaction to a colostomy is highly individual, varying with age, sex, social status, education, character structure, physical condition, and insight into the nature of the procedure, nevertheless certain themes recur with sufficient frequency to apply to almost all patients who have a dry colostomy. It is very apparent that the ease of management of the colostomy and the patients' acceptance of it are highly modified by psychological and social factors and, indeed, in a large proportion of cases these are all-important. Acceptance and adjustment to the colostomy are rarely automatic or easy and require extensive mobilization of the patients' psychological and social resources to meet the crisis.

It is obvious that the patient who finds himself with a colostomy has been through a trying ordeal compounded of

worry over his condition, fear of cancer, and doubts of survival, and has been subjected to a serious and mutilating operation. A rather serious depression occurs fairly regularly during the postoperative period and usually lasts from three to six months. The patient may feel degraded because of his lack of control over rectal function; he may be horrified at the magnitude and extent of surgery; he will have active fears over his prognosis for life and the possibilities of recurrence of cancer; and he may express feelings of hopelessness in his ability to manage the colostomy in his life pattern or to resume his former activities. Unfortunately, it is in this setting that most patients have to learn to manage their colostomies; hence it is not surprising that management of the colostomy is often very difficult during this three-to-six-month period. This is the time when the patient needs all the support that he can get, because it is during this period that the structure of his adjustment to the colostomy is formed. The degree to which the patient adjusts during this period can make the difference between a hopeless invalid and a well-functioning individual — between a

*From Memorial Center for Cancer and Allied Diseases.

chronically depressed patient and one who can enjoy his life.

Unless the patient has rather exact knowledge of what was done to him, he is very liable to feel that he is a weak and delicate individual because of the extensive rearrangements of his internal economy and the loss of a valuable and psychologically very important part. This attitude is sometimes reinforced by medical overemphasis on limitations of exercise and exertion, and also, in the male, by partial or total sexual impotence. It is unfortunately sometimes given some reality by persistent and troublesome urinary-tract infection. The sense of weakness and fragility is almost regularly present and can be one of the most important factors in perpetuating invalidism. Moreover, when the patient does recover some measure of health, he may act out this belief by working far below his capacity with consequent serious economic deterioration. To many patients in the older age group, this sense of fragility heralds the onset of old age and reinforces their sense of need of restricted activity which they believe old age imposes. If this attitude is not combated early, a serious degree of invalidism may result where none is justified.

Acceptance of the patient and his special problems by his family in a realistic and supportive way is of tremendous importance. The problem of adjustment is vastly increased when the family rejects the patient or does not co-operate in the routines necessary for his irrigation and bowel function. The physician should explain to the family as much about irrigation as he explains to the patient, so that they may have full understanding of his problems and be able to help him in caring for his colostomy when that is necessary.

Any serious life problem adding to the anxiety and depression of the patient will inevitably affect the ease of management and the total adjustment of the patient to his colostomy. Therefore, he should be offered help in the

solution of these problems, by the physician, or by community services, or, if necessary, by a psychiatrist.

Patients with colostomy have a chronic fear of social rejection because of unexpected spilling or odor or even a noisy gas expulsion over which they have no control. Indeed, some patients, even without these difficulties, fear that knowledge by others that they have a colostomy will lead to rejection. Consequently, many become unduly secretive, avoid jobs where physical examinations are necessary, avoid occasions for travel where irrigation needs may have to be explained or become obvious to others, or when the facilities may not be so convenient as at home. Fear of rejection may cause them to seek other types of work, or remain away from work, or seriously curtail work in groups or social activities. It is also in this area that they need considerable support and encouragement.

It should be remembered that adjustment to the colostomy is not static. A well-adjusted patient may become poorly adjusted and have difficulty with management of the colostomy owing to such factors as intercurrent illness or recurrent disease or, more commonly, to emotional upsets. In the absence of recurrent disease, sustained loss of ease of management in an otherwise well-adjusted colostomy patient, almost always means a serious emotional problem in the life of that individual.

Dietary restrictions necessary for control are apparently highly individual matters and indeed often appear to be without rationale. Many well-adjusted patients make no restrictions in their diets at all.

There is a tendency for many patients to ritualize the process of irrigation so rigorously that it seriously interferes with other activities. This is usually based on the notion that clock-like regularity of bowel function is necessary to prevent spilling, and, indeed, to the preservation of health through prompt elimination of poison-

ous wastes. A certain degree of flexibility, especially as to the time of irrigation, should be encouraged so that irrigation may be adjusted to life and not life to the irrigation.

The physician should attempt to establish with each colostomy patient a close personal relationship, so that the patient can express his fears and his problems and feel able to call upon the physician for help, especially during

the early months of his readjustment. The physician should allay the anxieties of the family and secure their cooperation in planning for the patient's life. Moreover, the earlier these efforts are made, the better chance the patient has to avoid invalidism. If the patient is allowed to settle into an unsatisfactory pattern of adjustment for any length of time, the chances of rehabilitation are very small.

Care of the Dry Sigmoid Colostomy

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The success or failure in the rehabilitation of a patient with a colostomy is in large measure directly attributable to the attitude of the attending physician toward the colostomy and its care. If the physician feels that the patient has an insurmountable handicap, that attitude is often transferred directly to the patient. If, on the other hand, the physician feels that the colostomy is a relatively minor price paid for the cure of an otherwise lethal disease, the patient is encouraged to make the necessary adjustments without giving up the pursuit of a useful life. This attitude is surely justified in the case of a dry sigmoid colostomy, since the patient, after being taught a method of irrigation to cleanse the colon of fecal material, is free of the necessity of wearing any artificial receptacle other than an abdominal support and a small dressing. Patients who are taught this technique are able to return to any activity other than those requiring the most violent use of the abdominal musculature. Physicians, lawyers, actors, teachers, and many others have carried on their professional and social activities in their usual manner without embarrassment, indeed, without anyone knowing of their handicap unless they chose to make it known.

The attitude of the physician toward the colostomy is transmitted to the patient more by implication than by

lengthy explanation, particularly before operation. It is a truism that no matter how detailed or lengthy an explanation of a colostomy and its care is given, the patient is usually unable to understand the problem completely until he actually takes care of it himself. Moreover, some patients may have extremely unpleasant impressions of a colostomy, gained from other patients who had recurrent or inoperable cancer or who were never instructed in the proper care of the colostomy. Under these circumstances it is extremely difficult, or impossible, to make such a patient cease identifying himself with these unfortunate individuals. Again, with these patients, lengthy explanations often serve only to magnify the problem confronting them. There seems to be no question but that different psychological types of individuals need different methods of having the colostomy problem discussed with them.

How Much Shall the Patients Be Told Preoperatively?

Surgeons differ greatly in their approach to the problem preoperatively. These approaches vary from telling each and every patient that he will have to have a permanent colostomy to that of never telling any patient that a colostomy is to be done. The latter attitude is felt to be justified because occa-

sionally a patient will refuse an operation that may offer an 80 to 90 per cent chance of cure because of an unreasoned prejudice. One approach that has proved satisfactory over many years is to tell the patient simply that the operation entailed is a major one and that part of the rectum may have to be removed. If no further questions are asked, no further information is volunteered. If he asks if this means a colostomy, he is matter-of-factly told that it may but that one can never be sure until complete evaluation can be done at the operating table. It is the unusual patient who probes further than this. The guiding principle in this approach is never to tell a direct lie or a falsehood by implication and at the same time to try not to confuse the patient with technical details he is not prepared to understand at a time when he is emotionally upset.

Postoperative Adjustment

Postoperatively, many patients experience a severe psychic depression when they become aware that they have a permanent artificial anus and that they will never be able to move their bowels in the normal fashion. This depression lasts a variable length of time. When the patient first becomes aware of the colostomy, the most important controllable factor is the attitude of the attending physician and of the nursing staff who take care of him and give him his instruction in the care of the colostomy. It is worth any time that it may take to be sure that the floor nurse or the special nurse on the case has a healthy attitude toward the colostomy. If the nurses pass on the feeling of maudlin sympathy for the poor patient who has had this major catastrophe happen to him, the patient may never learn to accept it or to care for it properly. If the attitude is one of sympathetic appreciation that the patient has to learn to control this handicap but that there will be no major

change in his way of life, the patient soon assumes much the same attitude—often before he leaves the hospital.

Postoperative Management

There are a few technical details of the construction that are important. First the colostomy should be so placed that it is in a position that is easily managed—our preference is the midline, midway between the umbilicus and the symphysis pubis. Next the colon should be brought out in a moderate curve so that no acute angles are formed between the attachment to the parietal peritoneum and the abdominal wall. The colostomy is constructed so that a finger may be placed in the lumen without tension, making sure that the fascia and the skin are closed neither too tightly nor too loosely. The colostomy is opened on the second postoperative day.

Usually no attempt is made to make the colostomy function at this time unless the bowel has become distended. About the fifth postoperative day, milk of magnesia can be given to start it functioning; however, this may precipitate a severe psychic trauma in the unsuspecting patient when the abdomen is suddenly flooded with feces. An alternate method is to wait until the sixth day at which time a small irrigation—a pint of warm saline or weak potassium permanganate solution—is given. Later, lukewarm tap water is used for the irrigating solution. The next day a quart irrigation is given; the following day, 1500 cc. or full irrigation may be used. Subsequently daily irrigations are given using sufficient water to obtain a good return of fecal material. This may require anywhere from a quart to six or eight quarts. As soon as full irrigations are started, the patient is instructed in performing them himself. The irrigation should be done daily until the patient has mastered the technique; then it can be done every other day.

Irrigations

The method of irrigations is solved simply by the use of the Binkley Colostomy Irrigating Set (Fig. 1), which consists essentially of a plastic cup with a hole in the center through which a catheter can be passed into the colostomy. This catheter is connected by rubber tubing with an irrigating bag containing the solution. This bag should not be placed higher than 18 to 24 in. above the colostomy. When placed higher, the force of the solution will cause a great deal of distress, sudden distension of the colon causing cramps and fainting attacks that only serve to discourage the patient more completely. The plastic cup has a projecting arm through which fecal material and waste water flow from the colostomy via a rubber connecting tube into a receptacle, either a large bucket or, if the patient is ambulatory, to a commode. (Fig. 2.) The patient should be taught to stop the flow of solution immediately on feeling full or distended. The waste is allowed to flow out and the process repeated until a good elimination of fecal material is obtained.

Particularly in the early phases, the patients are urged not to try to irrigate until the return is clear, since they may become exhausted by taking three and four hours. Later they will adapt their own variations of the method to suit their convenience. With this method, the majority of the patients are able to irrigate every second day, usually taking about an hour for the completion of the entire process, and then to stay free of fecal discharge for the following two days. Occasionally a patient will find that he feels better if he does the irrigation daily and does not have to spend so long with each irrigation. Other patients will do it every third day and take great pride in their ability to go this length without soiling.

It should be impressed on the patients that these irrigations are purely for their own convenience and are not a necessity to keep well; otherwise they



Figure 1. The Binkley colostomy irrigator.

A. Belt assembly; B. Inlet water tube; C. Plastic irrigating cup; E. Collection bag; F. Glass observation tube; G. Long reclining sheath; H. Short toilet sheath; I. Irrigator tube; J. Tubing cutoff; K. Irrigator bag, 2 qt.

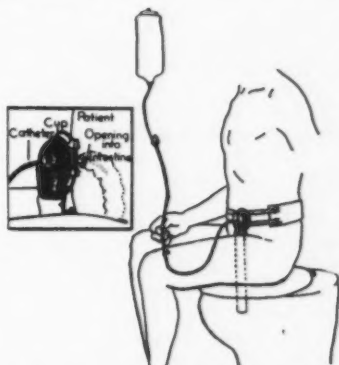


Figure 2. The irrigator in use.

may become very slavish as to the exact time that the irrigation is to be done, not infrequently refusing any social engagement because it might interfere with the performance of the irrigation at such and such an hour.

Protection between Irrigations

Following the irrigation they wear a simple dressing well lubricated with petroleum jelly over the colostomy stoma. This is best held in place by a firm abdominal support.

Diet

The patient should be told he can eat anything that agrees with him. He should be warned that certain foods may not agree with him and that he should gradually add to his basic diet, as established in the hospital, such foods as raw fruit and laxative foods carefully, taking plenty of time to decide whether they cause him to have an "accident" in the way of unexpected diarrhea.

No constipating drugs are used except for the occasional patient who may develop a diarrhea just as a normal person may on occasion. Frequently when these patients develop an upper respiratory infection, they will have a tendency to diarrhea. When this happens, they should be given boiled milk and very simple constipating food until the attack is over.

Management of the Wet Colostomy

Virginia K. Pierce, M.D.

The creation of a wet colostomy would, at first thought, be a mutilating procedure of such magnitude that it would be unacceptable to the patient. The past three-years' experience has completely disproved this supposition. The pelvic condition requiring this operative procedure is far-advanced carcinoma of either the genitourinary tract

Follow-Up

After the patient has been discharged from the hospital, it is important to have frequent follow-up visits in the office. This serves many purposes, not least of which is the opportunity for the physician to reassure the patient while he is making the necessary adjustments to his new state. Many minor problems will be magnified when he leaves the protective surroundings of the hospital with the reassurance provided by the staff, unless he is given ample opportunity to discuss them with his physician. It also serves to aid the physician in correcting minor complications as they arise.

Occasionally the colostomy will be found to develop varying degrees of stenosis usually at the skin margin. These should be revised and enlarged, for this stenosis often causes difficulty with irrigations. Occasionally hernias about the colostomy cause difficulty with irrigations and these should be repaired.

Very rarely a patient, after being taught how to irrigate, will decide that he would rather not be bothered and will devise some type of receptacle to wear all the time. The patients themselves are very ingenious, and many very satisfactory receptacles have been devised by them. If possible these should be made of material other than rubber, such as a plastic, for rubber soon becomes impregnated with a fecal odor.

or the rectum. Many of the cases have been of recurrent cancer after radiation failure, and a few have been pelvic exenterations necessary to save life after over-irradiation.

The nature of the operation and the problem of the wet colostomy are explained to the patient and the patient's family in advance. The type of appli-

ance for care of the wet colostomy is demonstrated to the patient, and, when feasible, a former patient who has had the operation interviews the new patient. The two patients are allowed to confer together in privacy. Only one patient to date has refused the operative procedure; she returned later, asking that it be performed. It has not been our policy to inform the patient of the nature of the disease—she is told only that she has a tumor that is invading the bladder and rectum, necessitating removal of those organs. There is no doubt that the patient knows that she has cancer, but the traumatic effect of the use of the word is not inflicted upon her.

After admission to the hospital, the nursing staff continues the psychotherapy to prepare the patient for her future. The patient accepts her fate cheerfully—life with mutilation is more endurable than the present state of pain and the prospect of death.

Immediately after operation, the nurses start the regimen of skin care to prevent excoriation from urine and feces. The wet colostomy is opened immediately after surgery to allow the free flow of urine. Formerly, the abdomen was painted with tincture of benzoin, twice daily, to coat the skin and protect it against the excoriation of urine. Frequent changing of urine-soaked dressings is imperative to aid in skin protection. If a special-duty nurse is not available, the patient is taught to change her dressings. Any objection on the part of the patient, because of distaste at such an ordeal, is easily alleviated by comparing the procedure to that of changing a baby's diaper. This simple comparison readily wins the patient's co-operation.

We have recently been using a coating of flexible plastic on the skin with better success than tincture of benzoin. Ten per cent Vinylite in alcohol and a plastic spray have both given good results. The skin is cleansed with acetone or ether and the plastic is then applied in a thin coat similar to the application



Figure 1. A patient wearing the wet colostomy bag; she pursues her normal home and social life.

of nail polish. This thin, flexible coating dries within two minutes and protects the skin for twelve to twenty-four hours, after which time it peels off readily in large sheets. Excoriated skin has been noted to heal completely within forty-eight hours after the first application of the plastic.

The skin sutures most commonly used are catgut, and these are removed on the seventh postoperative day. The wet colostomy bud at that time is still usually edematous, but a trial bag may be applied. Several types of appliances are available. The Rutzen bag has a metal face plate that is covered with rubber. The opening in the plate is

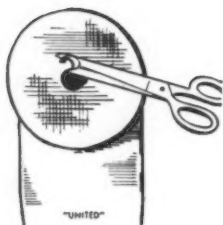
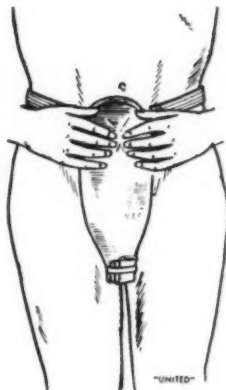


Figure 2. The face plate of the Pierce bag is tailored to fit.

stamped and cut to the size of the bud. The slow production and delivery of this appliance means that, by the time the bag arrives, the bud has shrunk to the point that the opening in the bag is no longer proper for it. With the Pierce bag (Figs. 1, 2), which is made of rubber with a face plate of rubber, the patient is able to use bandage scissors to tailor the opening of the bag to the size of the bud. The patient is provided with three bags in the initial set. The first bag is cut for the edematous bud, and is used daily until the bud has shrunk sufficiently that the second bag can be tailored to the smaller bud.

A skin cement is painted on the circular area surrounding the bud and also on the face of the bag. The bag is then applied to the skin. A supporting belt acts as a safety factor. An opening is present in the dependent part of the bag for emptying purposes. This opening is closed with a simple rubber band which can easily be removed to allow easy emptying. The bag need not be removed from the skin surface for twenty-four to forty-eight hours. It is then cleansed thoroughly with a special soap powder containing chlorophyll as a deodorant, after which it is allowed to hang in the open air for thorough drying, and an alternate bag is applied to the bud. For further deodorant effect, the patient is instructed

Figure 3. (Right) The bag is pressed firmly around the bud to insure perfect adhesion. The bottom of the bag is fastened by a rubber band around two or three folds; it is opened for emptying, by pulling down on the last up-turned tab.



to take chlorophyll tablets by mouth three times each day. (These can be taken indefinitely without harm.)

Experiments have been tried, using disposable plastic bags, but as yet, the price has been prohibitive for the clinic patient.

The patient may wear an ordinary girdle over the bag, or a round opening may be made in the girdle to allow the bag to protrude through the opening.

It is remarkable how quickly the patients become adept at the management of their bags. The psychological adjustment comes quickly, since the patient is so relieved to be free of wet dressings.

Many of these patients have returned to employment without their co-workers knowing that they have a wet colostomy. They develop a pride in the management of their colostomy and are always willing to help new patients with their problems. All are instructed that they must not have colostomy irrigations after the ureters have been transplanted because of the danger of ascending pyelonephritis following an irrigation. It has been truly remarkable how "medically wise" these patients become, and we are often surprised by the constructive ideas that they have to offer in the management of a wet colostomy.

DOCTORS DILEMMAS

Q *Is there any good evidence that asymptomatic cancer of the lung, detected in the course of mass chest surveys, offers a better prognosis for survival than does the lung cancer that is diagnosed only after symptoms have appeared?*

A On the basis of early returns, the dictum "early cancer can be cured" appears to apply to cancer of the lung—at least to a worth-while number. A recent Mass Chest X-ray Survey in Boston included 536,012 subjects. Suspected cancer was found in 398, and a positive diagnosis was made in seventy-six. Primary cancer was proved in forty-three; and radical operations, in an attempt at cure, were performed on twenty, or almost 50 per cent. Twenty-one of the forty-three were inoperable (exploratory thoracotomy was done in eight), and two refused surgery. Of the seventy-six patients, fifty-two were between 50 and 69 years of age; eight between 40 and 49 years; and nine between 70 and 79 years.

In addition to the seventy-six, one case each of lymphoma, lymphosarcoma, and Hodgkin's disease was found; fifteen others showed metastatic lesions; and fifteen had presumptive evidence of cancer. Later, on final analysis of the roentgenograms, nine additional cases of cancer were found; two primary, three presumptive; one definitely with, and three suspected of, metastases.

Of the forty-six with primary cancer, thirty-five were men (76.1 per cent), eleven, women (23.9 per cent); of those with metastatic cancer, six were men and nine were women.

Q *I have a patient with advanced cancer of the breast and metastases to lungs, bones, and liver, who has been kept relatively comfortable with testosterone. However, she has recently and suddenly developed petechiae over the lower extremities and oral mucous membranes. She is receiving no other medication but testosterone. Can you suggest the cause of the petechiae, and if there is any effective treatment, since she appears relatively well otherwise.*

A Development of hemorrhagic tendencies in patients with carcinomatosis, in the absence of other etiological causes, is highly suggestive of extensive invasion of bone marrow with cancer cells, causing depression of platelet formation. Frequent administration of blood might be helpful, together with cortisone or ACTH. This development must be regarded as of grave prognostic significance.

Q *In a patient hesitating at the prospect of cholecystectomy for cholecystitis and cholelithiasis, is one justified in emphasizing the prophylactic value of such surgery in preventing the development of cancer of the gallbladder?*

A Primary cancer of the gallbladder is not a common neoplasm, but such a warning to the reluctant patient is probably justified. Evidence that cholelithiasis may be considered of etiological significance in the development of primary carcinoma of the gallbladder is found in a report of one series of cases in which 73.2 per cent of 2067 patients with primary gallbladder cancer were found to have gallstones.

Q *Should cervical biopsy be performed in all cases of chronic cervicitis?*

A Yes! And no treatment should be instituted until the biopsy report has been received from the pathologist. This delay is usually minimal and will permit repeat biopsy, if requested, from areas that have not been destroyed by treatment. If possible, cervical and vaginal smears should be obtained from all patients with chronic cervicitis. Early, unsuspected carcinoma often coexists with benign cervical disease.

Q *How often is massive gastrointestinal hemorrhage caused by cancer of the stomach?*

A This is a relatively rare occurrence and develops in only approximately 5 per cent of patients with stomach cancer.

Q *Since the antifolics are effective against leukemia and since ACTH and cortisone are also, is there any evidence that there is an additive effect when they are used conjointly?*

A Recently much interest has been aroused by reports that in an appreciable number of instances of acute leukemia in children, in which the patient had become resistant to antifolic therapy (aminopterin or amethopterin), the use of ACTH or cortisone during the stage of resistance to antifolics successfully induced a remission of symptoms and in a few instances apparently brought about a resensitization of the patient to folic acid antagonists.

Q *Is Boeck's sarcoidosis a type of cancer?*

A No. This disease represents a proliferative reaction of tissues to an antigen, resulting in enlargement of mediastinal and other lymph nodes, various skin reactions, and, less frequently, involvement of viscera and the skeletal system. Since one third to one half of

these patients eventually develop active tuberculosis, it is believed by some that Boeck's sarcoidosis is an unusual reaction of the host to the antigens resulting from tubercle-bacillus infection.

Q *How frequently is acute intestinal obstruction associated with cancer of the bowel as the precipitating factor that brings the patient to the hospital as an emergency?*

A In patients 50 years of age or older, acute bowel obstruction was due to cancer of the bowel in 40 per cent of the cases in one recent series. Every effort must be made to determine the cause of the obstruction in these patients and to institute appropriate treatment without undue delay.

Q *A 46-year-old man complaining only of abdominal pain was found on physical examination to have a large nodular liver. Roentgenograms of the chest, entire gastrointestinal tract, kidneys, and bones showed no abnormalities. The only significant finding is that one eye was removed fifteen years ago. The patient does not know why the eye was removed and can only assure me that there was no obvious infection or trauma that necessitated enucleation. Would metastases from a tumor develop as long as fifteen years following adequate surgery? I have tried without avail to secure a report or slides from the physician who performed the operation.*

A It is probable that you will receive confirmation of your suspicion of liver metastases from a malignant tumor of the eye. Metastases from all forms of cancer may occur many years after apparent "cure." However, such late-appearing metastases are most commonly seen in patients who have had enucleations for melanoma and in patients with cancer of the breast treated by radical mastectomy. It occurs less frequently when sarcoma has been the original diagnosis.



new developments in cancer

Bone-Marrow Depression Curbed

Klopp and others at George Washington University have found cortisone to be effective in delaying and reducing the severe bone-marrow depression that accompanies intra-arterial injection of nitrogen mustards.

In preliminary tests, cortisone given after a course of nitrogen mustards resulted in rapid recovery from bone-marrow depression. Given with the nitrogen mustards, it delayed the depression. This became prolonged when both drugs were discontinued simultaneously, but early recovery was registered when cortisone was continued after nitrogen mustards were stopped.

Aureomycin also protected the bone marrow and, in addition, helped maintain the general nutrition.

Radiogold Therapy . . .

Radiogold colloid was tested on seven inoperable cancer patients at the Medical College of Virginia. Three—with carcinoma of the tonsillar fossa, carcinoma of the tongue, and extensive carcinoma of the breast—showed marked improvement. Moderate improvement was seen in injected melanotic nodules; some, in extensive peritoneal metastases of gastric cancer.

Tests of New Male Hormone . . .

Homburger and others at Tufts report, after tests in fifty cases of human breast cancer, that methylandrosterone-diols is as effective against breast cancer as testosterone and much less virilizing. They also noted that such complications as water retention and hypercalcemia were reduced with the new hormone.

Because of the hormone's nitrogen-retaining character, it may be of value in suppressing postpartum lactation, premenstrual tension, and the menopausal syndrome.

Cortisone and Wound Healing . . .

Layton of Johns Hopkins University has found that high doses of cortisone completely suppress sulfate fixation. Different levels give a graded response. The findings may explain in part why cortisone delays or prevents wound healing.

Glucuronolactone . . .

Glucuronolactone, tested at Yale in three patients with far-advanced tumors, failed to stop tumor growth but induced a significant decrease in pain, nausea, and vomiting and increased the feeling of well-being.

A combination of Coley's toxin, roentgen rays, and nitrogen mustards used against fibrosarcoma of the chest wall with pleural and mediastinal metastases brought dramatic relief of pain and a possible slowdown in tumor growth.

ACTH . . .

Bartter and others, of Massachusetts General Hospital, have charted the effects of ACTH in three patients with panhypopituitarism given 10 to 100 mg. daily. Loss of nitrogen was without commensurate loss of phosphorus and potassium; there was loss of calcium; retention of sodium and chloride in the extracellular fluid; transient loss of potassium (apparently replaced by sodium in intracellular fluid); rise in urinary corticoid excretion; and a rise in 17-ketosteroid excretion in one patient who still possessed luteinizing hormone but not in the other two patients. All these effects may be due to release of "sugar" hormone, but whether the rise in 17-ketosteroids is to be so interpreted is doubtful.

Male Hormone and Breast Cancer

Only thirteen of forty-eight cases of breast cancer showed objective improvement when treated with testosterone, according to Segaloff and others at Tulane University. The rest showed progression of the disease or no change. In general, those that improved showed a decrease in urinary creatine. Those that didn't showed an increase.

Virus Therapy . . .

Rare viruses (West Nile and Ilhéus), which destroy some mouse tumors and are believed not dangerous to man, were tried on a dozen patients with advanced cancer at the Memorial Center. No harm was done; one case of subacute lymphatic leukemia was helped; little or no good was wrought in the other cases.

Measured Radiation for Chronic Leukemics . . .

Osgood of the University of Oregon has reported that small doses of roentgen rays—administered periodically to meet the patients' needs rather than at set intervals in larger doses—prolong the life of the chronic leukemic. Close checks are kept on patients between doses of Heublein roentgen rays or intravenous radioactive phosphorus, in order to time treatment with the patients' actual needs.

Of fifty-eight patients so treated, thirty-two are still alive a mean average of 3.6 years after diagnosis; of nineteen who have had leukemia more than five years, eight are still alive a mean average of 6.7 years; one worked and lived normally for fourteen years—and died after a two-week illness.

TEM . . .

TEM (triethylenemelamine) used in fifty-eight patients, was found to be "a valuable addition to the small group of chemical agents useful in palliation" of Hodgkin's disease, lymphosarcoma, chronic lymphatic and myelogenous leukemia, and mycosis fungoides, according to Karnofsky and co-workers at Memorial Center and New York Hospital.

The advantages of the drug, which resembles the nitrogen mustards toxicologically and therapeutically, are that it rarely causes nausea, vomiting, or venous thromboses at the site of injection and that it can be given orally in convenient maintenance doses or by repeated periodic courses. Animal experiments show TEM does not produce nitrogen mustard's cholinergic and central-nervous-system stimulation at LD₅₀.

Cautions in its use include: white-cell count and hemoglobin level must be followed closely to avoid severe—sometimes fatal—bone-marrow depression as an inevitable consequence of overdosage.

Bequests Foundation Awards Funds for Cancer-Patient Care:

The Black-Stevenson Cancer Foundation has awarded about \$750,000 each to the Presbyterian Hospital in Newark, New Jersey, and the Memorial Center for Cancer and Allied Diseases in New York. The institutions were selected from among more than 5000 that had applied for donations during the last five years. The grants were made as 20-year endowments, with the institutions permitted to expend not more than 10 per cent of the principal each year, if they elect to do so. Each hospital will set up separate funds to be called the Black-Stevenson Memorial Fund, which will be applied "for the care and treatment, preventive and remedial, of needy persons afflicted or threatened with cancer."

Antivivisectionists Losing Ground as Scientists Continue Initiative: A Report to Members of the Federation of American Societies for Experimental Biology from the National Society for Medical Research.

Already this year two more states have adopted legislation to facilitate medical research and teaching involving the use of dogs and cats. South Dakota and Oklahoma have adopted laws giving to approved laboratories animals which ordinarily would be killed in public pounds. Similar legislation is pending in Illinois and Pennsylvania.

The signing of the Oklahoma law by Governor Murray last week brought to 14 the number of states with affirmative laws on animal experimentation. Oklahoma is the fourth state to make definite provision for the supply of dogs and cats needed for scientific study. Thirty cities throughout the United States have adopted parallel policies for the saving for research use of unclaimed pound animals.

Not every attempt to obtain positive legislation to speed medical progress has been successful this year. A bill to provide pound animals for experimentation was defeated in Massachusetts. A pound bill remained in a Senate Committee in Arizona when the legislature adjourned. A New York bill mysteriously failed to come up for a vote after being unanimously endorsed by the Assembly committee to which it had been assigned, and despite pledges of more than enough votes to insure passage in both House and Senate.

Significantly the proposals to prohibit vivisection which used to torment scientists were no problem at all this year. When the National Society for Medical Research began its advocacy of a positive approach to the antivivisection

problem in 1946, New York had just that winter barely escaped an antivivisection law after a furious fight. Six states already had laws restricting animal research. Antivivisection legislation and legal attacks had scientists defending themselves periodically in most of the major medical centers. The defense efforts of those days were usually successful, but success meant no more than a maintenance of the status quo while defeat meant a real tragedy for all of mankind.

Prior to 1946 nearly every scientific institution treated animal experimentation as a hush-hush matter. Science writers, at the request of scientists, withheld most of the glorious stories of the contributions of experimental animals. No wonder in times of crisis the importance of animal experimentation was so difficult to establish.

Today the life-saving contributions of animal experimentation are told every day in the popular press, on the radio and via television. Within six months after the founding of the NSMR the rate at which the achievements of animal research were reported in newspapers increased more than 3,000 per cent.

After three years devoted to pulling aside the curtain of mystery surrounding animal investigation, the NSMR and the Rockefeller Foundation jointly sponsored a survey of public opinion by the National Opinion Research Center. In its report the NORC stated:

"People today favor the use of live animals in medical research and teaching by a wide margin.... There are, in fact, few issues for which such unanimity exists."

Today the efficacy of the forthright, positive approach is proved. The formula is as simple as 1-2-3:

1. Let the public know the truth about the methods of medical progress.
2. Seek positive measures to speed medical progress. Do not be content to defend the status quo.
3. Depend upon public understanding rather than back room political methods to insure long term legislative progress.

The National Society for Medical Research will continue to fight for broader public understanding and positive public policy until the antivivisection cult has joined the other crank movements rendered inconsequential by general enlightenment.

COURSES IN EXFOLIATIVE CYTOLOGY (Cancer Detection)

Sept. 17-
Dec. 14, 1951 These two courses will be open to a limited number of physicians and technicians. They will cover the cytology of the female genital, gastrointestinal, respiratory, and urinary tracts, as well as exudates.

March 3-
May 29, 1952 Instruction in laboratory procedures related to cytology will also be given. Tuition for each course is \$300.

Arrangements for shorter periods of instruction covering all or certain applications of exfoliative cytology may be made for those physicians who cannot come for the entire three months. Applications may also be submitted for the study of our cytological material for varying lengths of time during the rest of the year, except for July and August. The tuition in these cases will depend upon the length of time desired for training.

Instruction will be given by Dr. George N. Papanicolaou, Dr. John F. Seybolt, and their associates.

For further information and application blanks, write to: Dr. John F. Seybolt, Dept. of Anatomy, Cornell University Medical College, 1300 York Avenue, New York 21, N. Y.

COMING MEDICAL MEETINGS

Date	Association	City	Place
Sept. 11-14	International College of Surgeons	Chicago, Ill.	Palmer House
Sept. 17-21	American Hospital Association	St. Louis, Mo.	Kiel Auditorium
Sept. 25-28	American Roentgen Ray Society	Washington, D. C.	Hotel Shoreham
Oct. 7-10	Association of Military Surgeons of the United States	Chicago, Ill.	Palmer House
Oct. 15-18	American Dental Association	Washington, D. C.	Armory
Oct. 15-19	American Public Health Association	San Francisco, Calif.	Auditorium
Oct. 22-26	Inter-State Post Graduate Medical Association of North America	St. Louis, Mo.	Auditorium
Oct. 23-28	American Cancer Society, Inc.	New York, N. Y.	Park Sheraton Hotel
Nov. 5-9	American College of Surgeons	San Francisco, Calif.	Auditorium
Dec. 2-7	Radiological Society of North America	Chicago, Ill.	Palmer House
Dec. 4-7	American Medical Association, Clinical Session	Houston, Texas	Houston Coliseum
1952 March 3-5	Second National Cancer Congress	Cincinnati, Ohio	Hotel Netherland Plaza



